

How Has the Digital Transformation Affected the Organization and Operation of a Business

Chenyu Xiao¹

¹ Faculty of Social Science and Law, University of Bristol, Bristol, BS8 1QU, United Kingdom

Correspondence: Chenyu Xiao, Faculty of Social Science and Law, University of Bristol, Bristol, BS8 1QU, United Kingdom.

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Abstract

With the continuous advancement of information technology (IT), the information era has arrived, whereby digital technologies “has transformed many aspects of everyday life¹” and work, with business being one of the primary aspects as well. The digital transformations, which “take two primary shapes: digitalization and datafication,²” have fundamentally altered the development model of modern businesses, bringing about revolutionary enhancements to business organization and operation. The use of advanced technologies such as Artificial Intelligence (AI) has considerably boosted the efficiency of corporate management and decision-making processes. Besides, the use of telecommunication tools has promoted “the widespread shift to distributed work,³” making it significantly easier to conduct business across diverse jurisdictions. However, the adoption of information technologies in enterprises can also be detrimental. For example, incorporating AI into the decision-making processes within the boardroom may lead to slackness and negligence of the directors. On this basis, this essay will introduce the key characteristics of digital transformation and its impact on corporate governance. Furthermore, with respect to the drawbacks of sandbox, this essay proposed a disclosure-based regulatory framework.

Keywords: digital transformation, corporate governance, Fintech, AI

1. Introduction

Corporate governance is a dynamic process, that will continue to evolve with the advancement of technology, digital transformation is a typical example.⁴ The definition of digital transformation is “the process of using digital technologies to create new — or modify existing — business processes.⁵” It is fundamentally a method of introducing new technologies like artificial intelligence (AI), big data and machine learning into corporate governance.⁶

¹ Mark Fenwick and Erik P.M. Vermeulen, (2018). ‘Technology and corporate governance: Blockchain, crypto, and artificial intelligence’. 48 Tex. J. Bus. L. 1 (2019-2020).

² Mikkel Flyverbom, Ronald Deibert and Dirk Matten, (2017). ‘The Governance of Digital Technology, Big Data, and the Internet: New Roles and Responsibilities for Business’. *Business & Society*, 58(1), 3.

³ Diana Wu David and Sunshine Farzan, (2021, July 9). ‘Boards Are Undergoing Their Own Digital Transformation’. Harvard Business Review. <<https://hbr.org/2021/07/boards-are-undergoing-their-own-digital-transformation>> Accessed 14 April 2023.

⁴ Chukwunonye O Emenalo, (2014). ‘Corporate Governance Systems as Dynamic Institutions: Towards a Dynamic Model of Corporate Governance Systems’. *African Journal of Business Ethics*, 6.

⁵ Mikkel Flyverbom, Ronald Deibert and Dirk Matten, (2017). ‘The Governance of Digital Technology, Big Data, and the Internet: New Roles and Responsibilities for Business’. *Business & Society*, 58(1), 3.

⁶ Colin Mayer, (2018). ‘Future of the Corporation’. The British Academy. <<https://www.thebritishacademy.ac.uk/programmes/future-of-the-corporation/>>. Accessed 20th April 2023.

Digital transformation brings “exponential technological growth,¹” which leads to the deep integration of technology with corporate governance and concomitantly affects the organisation and operation of a business. Specifically, digital transformation brings fast-moving consumer demands, and then need digital technologies especially AI to engage in corporate governance, which transforms the company’s organisation. Furthermore, digital transformation disruption of the current structure of corporate governance,² brought about a decentralised structure, with businesses operating as an opening and inclusive platform.

However, along with the above-mentioned changes, digital transformation has also brought challenges, necessitating revisions to the regulatory framework and law (Companies Act 2006) related to corporate governance. Specifically, AI participation in board decisions affects traditional directors’ duties and raises data security threats, the regulatory framework needs to establish a disclosure-based regulation.³ In terms of decentralisation structure, due to its diverse features and the possible danger of ‘winner-take-all-or-most’.⁴ The polycentric regulation and ‘co-regulation’ system that combines self-regulation and public-regulation are required.

Based on the above analysis, this essay finds that digital transformation impact organisation and operation of a business by incorporating AI into corporate governance and establishing a decentralised framework. As a result of these impacts, the current regulatory framework needs to establish a disclosure-based regulation and build a polycentric regulation and co-regulation system.

This essay is organised into three sections. Section 1 presents two key features that drive digital transformation’s impact on company organisation and operation. Section 2 introduces the methods digital transformation impact organisation and operation of a business based on the above-mentioned key features, as well as the advantages and disadvantages of this impact. Section 3 discusses how the regulatory framework will change to address the negative impact.

2. The Key Characteristics of Digital Transformation

The primary distinctive feature of digital transformation is that it brings “exponential technological growth and fast-moving consumer demands.”⁵ Specifically, digital transformation has introduced various ‘new’ digital technologies, including AI, big data and blockchain. In contrast to earlier technical achievements, these new technologies boost each other’s growth, creating an ‘amplification effect’.⁶ As a result of the amplification effect, the rate of product innovation accelerates, market rivalry heats up, and enterprises need to properly predict market demand and customer preferences to make a profit.

According to Colin Mayer, “Technology is fundamentally altering the conduct of firms.”⁷ The ‘exponential technological growth’ necessitates pay more attention to understanding customer preferences and market trends. As a result, digital transformation incorporated AI into corporate governance, allowing businesses to leverage big data to forecast market trends and improve their market understanding.

The second distinctive feature of digital transformation is that “it includes some extremely disruptive elements.” “Digital transformation, therefore, undermines the ‘old corporate world’ of centralised authority, resulting in business decentralisation and disintermediation.”⁸ Some scholars have described this impact as “a fourth industrial revolution, bringing a ‘tsunami of disruption’.”⁹ This decentralised structure enables the company to operate as a platform, with decentralisation and involvement of all parties, to increase information transparency and lower information barriers. Shareholders and stakeholders can better understand how the directors use their investment, reducing investment risk and protecting their interests.

¹ Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen, (2019). ‘The End of “Corporate” Governance: Hello “Platform” Governance’. *European Business Organization Law Review*, 20, 171; Erel I, Stern L H, Tan C and Weisbach M S, (2018). Could Machine Learning Help Companies Select Better Board Directors? Fischer College of Business Working essay No. 2018-03-05. https://essays.ssrn.com/sol3/essays.cfm?abstract_id=3144080. Accessed 27th March 2023.

² Capt Tapas Majumdar, (2018, June 7). ‘Digitalization and Corporate Governance: Challenges, Impact and the Way Forward.’ [www.linkedin.com. <https://www.linkedin.com/pulse/digitalization-corporate-governance-challenges-impact-majumdar>](https://www.linkedin.com/pulse/digitalization-corporate-governance-challenges-impact-majumdar). Accessed 20th April 2023.

³ Akshaya Kamalnath and Umakanth Varottil, (2022, January 7). ‘A Disclosure-Based Approach to Regulating AI in Corporate Governance’ [papers.ssrn.com. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4002876>](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4002876).

⁴ Qiang (John) Cai, (2022). ‘Hello Platform Governance; but Never Ending Corporate Governance’. *European Company Law*, 19. <https://kluwerlawonline.com/journalarticle/European+Company+Law/19.2/EUCL2022008> Accessed 14th April 2023.

⁵ Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen (n 4).

⁶ Mark Fenwick and Erik PM Vermeulen, (2018, October 9). ‘Technology and Corporate Governance: Blockchain, Crypto, and Artificial Intelligence’. [papers.ssrn.com. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3263222>](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3263222). Accessed 14th April 2023.

⁷ Colin Mayer (n 3).

⁸ Capt Tapas Majumdar (n 5).

⁹ Ibid.

Digital transformation is thus characterized by ‘bringing exponential technological growth’ and ‘disruption’, which brings about two ways of influencing the organisation and operation of a business: Integrating AI into corporate governance and establishing a decentralised structure, as analysed below.

3. How Digital Transformation Affects the Organisation and Operation of a Business

3.1 Integrating AI into Corporate Governance

The first way digital transformation affects a business’s organisation and operation is integrating AI into corporate governance. Specifically, the fast growth of AI and the accelerated speed of social innovation in recent years have heightened the need for businesses to prevail in the marketplace by predicting and understanding customer preferences. Therefore, an increasing number of firms are incorporating AI into corporate decision-making, granting AI the power to vote, and utilising AI for market analysis. This incorporation of AI is changing traditional corporate governance, in which only natural persons have participated in corporate decision-making as directors.

‘Deep Knowledge Ventures’, for example, a Hong Kong company, utilises an AI called Vital as a member of its board of directors and gives it the right to vote on “whether or not the company invests in a particular company”, making Vital the world’s first “robot director.”¹ Vital was chosen because its decision-making method enables it to assess previous information to show tendencies that are less visible to the general director, this type of investment advice is more accurate,² which helps with market prediction and a choice of whether to invest.

This essay analyses the effectiveness of AI engagement in corporate governance.

Initially, AI offers the advantage of assisting businesses in anticipating market trends and accelerating innovation. AI could help businesses better evaluate and anticipate markets by using historical data, and enhance revenues by placing products according to consumer preferences. Furthermore, digital technology can increase boardroom efficiency, particularly in light of the pandemic: “Over 50% of boards are now using a mix of face-to-face and online models, which has significantly improved board efficiency, with a 20% reduction in meeting time and a 20% increase in attendance.”³

However, the involvement of AI in corporate governance also poses some risks. First, it may affect the duties by natural person directors. Moreover, it raises the question of whether natural person directors making decisions with the help of AI violate sections 173 and 174.

This essay argues that the Companies Act 2006 contains deficiencies in this area. Sections 173 and 174 mandate independent decision-making and diligence by directors.⁴ However, according to section 250,⁵ these requirements only apply to natural person directors and do not consider AI involvement in board decisions.

This essay argues that whether a director’s decision with the AI’s forecasts violates the duties imposed in sections 173 and 174 depends on the extent to which the director relies on AI.⁶ Specifically, decisions in corporate governance are made by considering many circumstances and analysing them together, but directors are generally not informed about all of these informations.⁷ As Samar Ashour observed, “Directors may not understand every area of decision-making.”⁸ Therefore, if the directors do not depend only on the AI projections for their decisions, but carefully examine the AI forecasts in light of the real situation in the businesses and the external market, they have not violated sections 173 and 174.⁹

Notably, some researchers argue that AI will replace natural person directors in board meetings in the future because AI can improve efficiency significantly.¹⁰ However, this essay argues the use of AI does not immunise natural person directors from duties, as “Directors have a continuing duty to keep fully informed about the

¹ Florian MMslein, (2017). ‘Robots in the Boardroom: Artificial Intelligence and Corporate Law’. *SSRN Electronic Journal*.

² Ibid.

³ Wu David and Farzan, (2021, July 9). “Boards Are Undergoing Their Own Digital Transformation”. *Harvard Business Review*. <https://hbr.org/2021/07/boards-are-undergoing-their-own-digital-transformation>. Accessed 18th April, 2023.

⁴ Companies Act 2006, s 173, s 174.

⁵ Companies Act 2006, s 250.

⁶ Samar Ashour, (2020, October 12). ‘Artificial Intelligence in the Boardroom: An Outright Exposure to Directorial Liability?’ [blogs.law.ox.ac.uk](https://blogs.law.ox.ac.uk/<https://blogs.law.ox.ac.uk/business-law-blog/blog/2020/10/artificial-intelligence-boardroom-outright-exposure-directorial>). <https://blogs.law.ox.ac.uk/business-law-blog/blog/2020/10/artificial-intelligence-boardroom-outright-exposure-directorial> Accessed 24 April 2023.

⁷ Joseph Lee and Peter Underwood, (2021). ‘AI in the Boardroom: Let the Law Be in the Driving Seat’. *SSRN Electronic Journal*.

⁸ Samar Ashour (n 18).

⁹ Ibid.

¹⁰ ‘AI in the Boardroom: Opportunities and Challenges | White & Case LLP’, (2020, November 19). [www.whitecase.com](https://www.whitecase.com/insight-alert/ai-boardroom-opportunities-and-challenges). <https://www.whitecase.com/insight-alert/ai-boardroom-opportunities-and-challenges> accessed 20 April 2023.

business of the company.¹” Furthermore, section 155 CA 2006 states that: “a company must have at least one director who is a natural person.”² Therefore, this essay argues that AI participation in corporate decision-making should be strictly regulated and clearly stated that AI participation in predictions and decisions does not immunise directors from liability.

The second negative impact of AI involvement in corporate governance is the usage of AI remains in a “black box” and is not transparent to the majority of shareholders and stakeholders. This situation makes it unfeasible for investors to grasp “what they do or how they work”.³ Furthermore, while AI predictions appear to be more impartial and neutral on the surface, “there is a possibility that directors who manage the AI algorithm parameters or AI prediction mechanisms are granted disproportionate authority.”⁴ A typical example is the bias of a natural person director, who is more inclined to appoint people who are close to him. It is entirely possible that this bias is assigned to the AI by the algorithm, resulting in the AI’s guidance lacking the objectivity it requires.⁵

Additionally, AI relies on data to make decisions, but there is a risk of privacy violations in collecting this data. The growth of the internet has exacerbated information risks, so there is a need to provide more comprehensive and restrictive disclosure to make AI work better.

3.2 Establishing a Decentralised Structure

Another way digital transformation affects the organisation and operation of a business is by dismantling the conventional centralised, hierarchical structure of businesses and replacing it with a decentralised structure. The decentralised structure allows for a faster flow of information, and enterprises can “operate and organise as open and inclusive ‘platforms’.”⁶

Initially, a decentralised structure enables businesses to respond to market developments more swiftly. Specifically, the old centralised businesses have a bureaucratic structure, which impedes the transmission and exchange of information.⁷ As Fenwick described, “these corporate governance structures become ‘corporate dinosaurs’, ‘lumbering giant facing extinction’ in the medium to long term.”⁸ In addition, the traditional model of corporate governance considers shareholders at “the top of the pyramid”, creating an “entrenched shareholder class” that ignores other stakeholders.⁹

The positive and negative impact of the decentralised structure in resolving the challenges of the traditional corporate organisation is examined next.

Firstly, the decentralized structure offers the advantage of allowing companies to operate as a platform, which greatly decreases information asymmetries caused by hierarchy, improves communication between information providers and extractors, and alleviates the problem of reaction latency in the traditional company model. Companies like Amazon, Google, and Alibaba are classic instances of the platform economy, which “uses algorithms to automatically match users with suppliers, lowering transaction costs and making it easier for consumers.”¹⁰ Furthermore, this structure has a ‘network effect’ that allows the business to be more attentive and protect the interests of multiple stakeholders, the platforms benefit from their customers’ growth, and the consumers simplify their lives through the services offered by the platforms.¹¹ For example, Uber is currently the largest car rental platform, the use of Uber benefits drivers, which, in turn, minimises passenger waiting times.¹²

However, decentralised organisation also has some drawbacks. First, both parties to a transaction rely heavily on a platform. Although, in theory, both parties to a transaction can request that the platform provide them with as much information as possible for their reference and judgement, in practice, both parties rely on the limited information provided by the platform and the qualification inspection performed by the platform; if there is a

¹ *Re Barings plc (No 5)* [2000] 1 BCLC 523.

² Companies Act 2006, s 155.

³ Akshaya Kamalnath and Umakanth Varottil (n 6).

⁴ *Ibid.*

⁵ *Ibid.*

⁶ Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen (n 4).

⁷ *Ibid.*

⁸ Linda M Sama, Abraham Stefanidis and R Mitch Casselman, (2021). ‘Rethinking Governance for the Digital Era: The Role of Stewardship’. *Business Horizons*.

⁹ Jeremy Grant and Thomas Kirchmaier, (2005). ‘Corporate Control in Europe’. *Corporate Ownership and Control*, 2.

¹⁰ Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen (n 4).

¹¹ Qiang (John) Cai (n 7).

¹² *Ibid.*

mistake in the platform's supervision, it is likely to result in damage to the interests of the company's internal and external stakeholders.¹

Furthermore, "the decentralized structure helps to reduce costs and connect different forms of economies, but in the current internet era it can also easily lead to a 'winner-take-all-or-most' and a 'lock-in effect'. One or two online platforms monopolise the current online market, and this monopolise is further maintained as they 'lock-in' users' personal information, such as uploaded images or posts, and it will be costly for users to move to other platforms.² Thus, the monopoly is maintained. For example, "the digital advertising market to date has been dominated by Google and Facebook, with social media dominated by Facebook.³"

Some researchers contended in "Hello Platform Governance; But Never Ending Corporate Governance,⁴" that corporate governance is still the dominant paradigm. They supposed that "The stakeholder theory has essentially neutralised the exploitation caused by the shareholder primacy theory, hence the creation of a platform is not unnecessary".⁵ However, this essay contends that stakeholder theory is frequently superficial and unsuited to the modern digital transformation of corporate governance. Furthermore, a company cannot live in isolation, but must be tied to the economy and society. There is a widespread trend for technology to impact corporations in the context of rapid technological progress. The old corporate governance model has been vulnerable to various difficulties including rigidity and bureaucracy, so change is inevitable.

4. What Means to Regulatory Framework

4.1 Establish the 'Disclosure-Based' Regulation

AI engagement in corporate governance requires the business to establish a disclosure-based regulation.⁶ Specifically, AI's decision-making process is opaque: regular shareholders and investors are unfamiliar with the AI algorithm, making it impossible to judge whether such algorithms are sufficiently precise. This creates security issues and hinders directors from fully understanding the reasons why AI makes faulty decisions, both of which are detrimental to AI growth and shareholder protection.⁷ In this case, disclosure of the AI decision-making process is required.

Initially, a disclosure-based regulation can reveal the decision-making process of AI, "ensure the decision-making process is explainable, transparent and fair."⁸ Such disclosures can help directors and other stakeholders better understand AI use, "resulting in a more reasonable decision." As AI becomes more prevalent in business operations, its decision-making process can significantly impact investors' decisions, the disclosure of the AI decision-making process may help reduce losses sustained by investors who are uninformed of the company's operations.

Furthermore, digital transformation is more than just digitalisation; datafication is also a crucial component. Specifically, datafication is the enormous amount of traces that individuals leave in the online space, such as browsing history or "likes" on Facebook.⁹ AI decisions primarily rely on datafication, and big data forecasts also based on a user's online traces. While this improves the accuracy of AI forecasts, it also raises the danger of breaching personal privacy, because we may readily divulge our private information in the digital world by utilising free services or even inadvertently.¹⁰ Therefore, disclosing AI's information processing is necessary, it can prevent corporations from acquiring too much private information from customers, allowing them to strike a balance between capturing market preferences and maintaining privacy and security.

It is worth pointing out that, under this disclosure-based regulation, the current provisions of AI disclosure of the Companies Act 2006 are still inadequate, owing to a lack of explicit disclosure obligations. For example, section 394 CA 2006 requires a company's directors to prepare accounts and publish material facts in each financial

¹ Louise Gullifer and Jennifer Payne, (2020). *Corporate Finance Law*, Bloomsbury Publishing.

² Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen (n 4).

³ Ibid.

⁴ Mark Fenwick and Erik PM Vermeulen, (2018, October 9). 'Technology and Corporate Governance: Blockchain, Crypto, and Artificial Intelligence'. papers.ssrn.com.

⁵ Ibid.

⁶ Akshaya Kamalnath and Umakanth Varottil (n 6).

⁷ Carlos Zednik, (2019). 'Solving the Black Box Problem: A Normative Framework for Explainable Artificial Intelligence'. *Philosophy & Technology*, 34.

⁸ Ibid.

⁹ Guang Yang, Qinghao Ye and Jun Xia, (2022). 'Unbox the Black-Box for the Medical Explainable AI via Multi-Modal and Multi-Centre Data Fusion: A Mini-Review, Two Showcases and Beyond'. *Information Fusion*, 77, 29.

¹⁰ Mikkel Flyverbom, Ronald Deibert and Dirk Matten, (2017). 'The Governance of Digital Technology, Big Data, and the Internet: New Roles and Responsibilities for Business'. *Business & Society*, 58(1), 3.

year,¹ but it does not supply to AI and does not specify which issues are ‘material’, it is not clear what information is required to be disclosed throughout the AI implementation process. Therefore, the Companies Act 2006 should be more detailed in its disclosure obligations and “become more dynamic, responsive and experimental.”²

4.2 Establish the Polycentric Regulation and Co-Regulation

The decentralised structure is characterised by diversification and the potential risk of a ‘winner-take-all-or-most’ approach. Therefore, a system for polycentric regulation and co-regulation is required.

First, polycentric regulation is required in response to the distributed character of the decentralised system. “Polycentricity is a complex form of governance with multiple centers of decision making, each of which operates with some degree of autonomy.”³ The decentralised structure enables the business to perform as a platform,⁴ multiple parties in this model are involved in corporate governance and are relatively independent of each other, with different platforms serving different purposes. For example, “Facebook acts as a ‘social platform’ and Amazon as an ‘exchange platform’.”⁵ Therefore, effective regulation will be difficult to achieve with a single regulatory body and businesses will need to set up polycentric regulation.⁶ Another benefit of this polycentric regulation is that it reduces the burden on each regulator, allowing them to focus on their own area and be able to judiciously review the information supplied by the platform to its users to limit risk.

Moreover, the ‘co-regulation’ system that combines self-regulation and public-regulation is a feasible solution to address the threat of ‘winner-take-all-or-most’ in the decentralisation structure.⁷ Specifically, ‘self-regulation’ refers to “regulation by a platform based on its own rules rather than interference by public bodies.”⁸ This regulatory method is more suited to regulating ‘exchange platforms’ like Amazon. Because these platforms are participatory and fast-paced, public regulation may result in inefficiencies. However, the difficulty with such self-regulation is that the interests of the platform and the client are not necessarily aligned.⁹ Where there is a conflict of interest, the single consumer is obviously in a more vulnerable position. The term ‘public-regulation’ refers to “resorting to government intervention to address the drawbacks of the platform.”¹⁰ This model of regulation is better suited to businesses characterised by big capital holdings and market influence. The apparent disadvantage is that governments do not always understand the market environment, and indiscriminate government action may cause more damage.

The platform’s regulation must consider both the regulation of platforms and the requirement to prevent the monopolistic concerns associated with the scale economy. Therefore, co-regulation, which combines self-regulation and public-regulation, is a viable answer.

In conclusion, to address the effect of organisational and operational changes, the regulatory framework needs to build an AI-specific ‘disclosure-based’ regulation and a polycentric regulation as well as a ‘co-regulation’ approach that blends self-regulation and public-regulation.

5. Conclusion

This essay examines how digital transformation affects the organisation and operation of a business and the changes it brings to the regulatory framework. The essay concludes that digital transformation has altered company organisation and operation in two ways: AI engagement in corporate governance and establishing a decentralised structure. The former has the drawbacks of challenging traditional board duties and being incompatible with the Companies Act 2006. The decentralised structure has the risk of “winner-take-all-or-most”. To solve these issues, this essay recommends that the regulatory framework construct a “disclosure-based” regulation to control the usage of AI. A polycentric regulation and a ‘co-regulation’ system are utilised to handle the issue of decentralised structure.

¹ Companies Act 2006, s 394.

² Mark Fenwick and Erik PM Vermeulen (n 38).

³ Keith Carlisle and Rebecca L Gruby, (2017). ‘Polycentric Systems of Governance: A Theoretical Model for the Commons’. *Policy Studies Journal*, 47.

⁴ Mark Fenwick, Joseph A McCahery and Erik PM Vermeulen (n 4).

⁵ Qiang (John) Cai (n 7).

⁶ Julia Black, (2008). ‘Constructing and Contesting Legitimacy and Accountability in Polycentric Regulatory Regimes’. *Regulation & Governance*, 2, 137.

⁷ Qiang (John) Cai (n 7).

⁸ Ibid.

⁹ Larry Catá Backer, (2021). ‘Trust Platforms: The Digitalization of Corporate Governance and the Transformation of Trust in Polycentric Space’. *SSRN Electronic Journal*.

¹⁰ Giuseppe Colangelo, (2020). ‘Evaluating the Case for Regulation of Digital Platforms’. *SSRN Electronic Journal*.

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